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U.S. Congress. House.
Committee on Education.

Cooperative system of
education--Vocational...

Washington

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COOPERATIVE SYSTEM OF EDUCATION—VOCATIONAL EDUCATION

HEARINGS

BEFORE THE

COMMITTEE ON EDUCATION

HOUSE OF REPRESENTATIVES
SIXTY-THIRD CONGRESS
SECOND SESSION

STATEMENT OF

MR. HERMAN SCHNEIDER

DEAN OF THE COLLEGE OF ENGINEERING OF THE
UNIVERSITY OF CINCINNATI

JANUARY 26, 1914

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Box 371

WASHINGTON
GOVERNMENT PRINTING OFFICE
1914

COMMITTEE ON EDUCATION.

HOUSE OF REPRESENTATIVES, SIXTY-THIRD CONGRESS.

DUDLEY M. HUGHES, Georgia, *Chairman*.

WILLIAM W. RUCKER, Missouri.
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JOHN W. ABERCROMBIE, Alabama.
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HORACE M. TOWNER, Iowa.
EDMUND PLATT, New York.
ALLEN T. TREADWAY, Massachusetts.
SIMEON D. FESS, Ohio.
ARTHUR R. RUPLEY, Pennsylvania.

JAMES L. FORT, *Clerk*.

COOPERATIVE SYSTEM OF EDUCATION—VOCATIONAL EDUCATION.

COMMITTEE ON EDUCATION,
HOUSE OF REPRESENTATIVES,
Monday, January 26, 1914.

The committee met at 11 o'clock a. m., Hon. Dudley M. Hughes (chairman) presiding.

The CHAIRMAN. We have with us this morning Mr. Herman Schneider, dean of the college of engineering of the University of Cincinnati.

Mr. TOWNER. Would it not be a good idea for Dr. Fess to conduct the examination?

Mr. FESS. I would suggest that the dean simply state to us the possibilities of industrial work as it has fallen under his observation, and then we can ask him questions.

Mr. TOWNER. I should like to have him tell the committee if he has given the subject consideration and in what way he thinks the General Government ought to or can assist in vocational education in the country. That is a pretty big question.

Mr. FESS. Suppose we have him state in a preliminary way the possibilities of vocational education as he has seen them.

The CHAIRMAN. We would be very glad to have you proceed.

Mr. SCHNEIDER. Do you want me to take up the question of the cooperative system?

The CHAIRMAN. Yes; and as we proceed the members of the committee may have some questions or suggestions.

STATEMENT OF MR. HERMAN SCHNEIDER, DEAN OF THE COLLEGE OF ENGINEERING OF THE UNIVERSITY OF CINCINNATI, OHIO.

Mr. SCHNEIDER. Mr. Chairman, the cooperative system aims to tie theory and practice together directly. In the engineering college at the University of Cincinnati our students work half of the time on railroads, in machine shops and foundries, in chemical plants, and with construction companies, and the other half of the time they are in the university taking the engineering course. Our students are divided into two sections, which alternate with each other biweekly; this week, for example, half of the students are in the university obtaining their theoretical and cultural instruction, while the other half are out in the practical field of engineering. Next week those who were in the university will go into the practical field, and those in the practical field will come to school; in this way the university and the cooperating companies are always full manned. The course is 5 years in length, 11 months a year. In these 5 years the student completes all the engineering courses of the standard grade necessary to the obtaining of a technical degree, and he also finishes his apprenticeship course in the practical field of engineering. This apprenticeship course in the practical work is arranged by the university, and is just as carefully worked out as his university curriculum. So that the student obtains in his practical work a progressive development from the simplest to the most complex phases of engineering practice. Students are paid for their practical work, the minimum pay for beginners being 15 cents an hour, but, of course, nearly all the students are paid at a much higher rate of pay than this. Our seniors are getting from 30 to 40 cents per hour. This, of course, is for every hour worked in the practical field.

At present we are doing business with about 65 concerns in mechanical, electrical, metallurgical, civil, and chemical engineering. There are about 400 students in the course. Graduation from high school or its equivalent is required for admission just as in any other standard engineering college. The theoretical work in the university and the practical work in the commercial field are coordinated by a number of devices, but principally by the use of teachers whom we call coordinators. Every afternoon these coordinators, who are either professors or instructors, are out where the students are at work observing all the details of operations involved, and taking notes that will enable them to use the practical experience of the students in their theoretical instruction. This is a very important part of the work. Time will not permit of an explanation in detail, but suffice it to say that the theory and practice are made to work hand in hand so that the practical work has the highest possible educational value. You will see then that the cooperative system rests upon a tripod—first, the selection of men; second, a carefully planned training in practical work; and third, a supplemantary education. The second and third being carefully coordinated.

The CHAIRMAN. Those are the commercial shops?

Mr. SCHNEIDER. Yes.

The CHAIRMAN. There is no connection with the institution?

Mr. SCHNEIDER. There is no connection except that they agree to cooperate on the terms mentioned. They pay the young men for the work at the same rate that they pay any other men for doing the same work, and they give a broad and thorough training which fits a young man broadly for his profession. The scheme of training being devised by the university.

Mr. FESS. Do you have any difficulty in getting the industries to accept the students?

Mr. SCHNEIDER. No; not now. When this course was started eight years ago there was a great deal of difficulty, but at the present time our difficulty is in meeting the wishes of the manufacturers. Our limitations are in the university by reason of our lack of buildings. The industries are very glad to get our men.

Mr. PLATT. Do you not run into the labor unions?

Mr. SCHNEIDER. No; the American Federation of Labor made an attack on this system when it was first started, but reversed its action a few years later. You will see by reading the 1912 report of the committee on industrial education of the American Federation of Labor that they are in favor of cooperative schools under public control. They are opposed to cooperative schools under private control, and so am I.

Mr. PLATT. Do you work with union or nonunion shops?

Mr. SCHNEIDER. We work both in union and in nonunion shops; it makes no difference to us, nor to the labor unions.

Mr. FESS. Mr. Schneider was the chairman of the board that settled the street car strike in Cincinnati.

Mr. SCHNEIDER. We had a number of strikes in Cincinnati last summer, but they did not interfere with the operation of the cooperative system.

Mr. TOWNER. I presume that all that would be necessary to prevent the antagonism of the labor unions would be to really show them that it was not intended to be competitive labor, but an absolutely educational work.

Mr. PLATT. But it is competitive labor to a certain extent.

Mr. SCHNEIDER. No; it is not competitive, for this reason—75 per cent of our students could not take the college course were it not for the money they earn in the course. They would be working full time except for this chance to go to college, so in fact we have withdrawn that many from full-time work and put them on half-time work. In the second place, we are training engineers and not mechanics, and, of course, there would be no objection to the training of engineers. However, cooperative courses have been started in high schools for the training of mechanics. Where these are under public-school control, I understand they are indorsed by the union. Many more boys continue in school under the cooperative system, because of the opportunity to do half-time work, to learn a trade, and to get a supplementary schooling. Nearly all of these boys would have gone to work full time.

Mr. FESS. What is the character of these businesses that receive these students?

Mr. SCHNEIDER. Our students work in nearly all the machine shops of Cincinnati, in the foundries, in the chemical concerns, in the municipal departments of Cincinnati, with the steam railroads and the traction company, with consulting engineers and designers, and with general contractors doing heavy costruction.

Mr. FESS. You say they work with the railroads?

Mr. SCHNEIDER. Yes; with the Pennsylvania Railroad and with the Big Four Railroad. Railroad men work any place on the railroads through Ohio, Indiana, and Illinois.

The CHAIRMAN. This cooperative work between the university and the shops is understood to be a part of the education of these boys, theoretically and practically, is it not?

Mr. SCHNEIDER. Oh, yes. The practical work is just as carefully arranged as the college curriculum. In manufacturing concerns we usually start them with the raw material and have them follow it through to the finished product sold. Every detail of the practical course is carefully arranged and practice and theory are knit together in a uniform scheme through a carefully devised system of coordination.

Mr. ABERCROMBIE. In other words, they learn the business.

Mr. SCHNEIDER. Yes.

Mr. Abercrombie. I would like to ask how many students are taking this cooperative course at the present time?

Mr. Schneider. About 400.

Mr. Abercrombie. You have two groups?

Mr. Schneider. Yes; one half is in the school while the other half is in the shops; they alternate biweekly.

Mr. Abercrombie. Does that necessitate three courses in the university, one for the regular students who are in the university all the time, another for the second section, and another for the third section?

Mr. Schneider. No; it necessitates two courses since the regular students go into classes with cooperative students. This is no more expensive than the usual system, because you have to subdivide the classes into sections anyhow and whether you teach one at 9.30, another at 10.30, one one this week and one next week makes no difference.

Mr. Fess. That does not work any harm to the industries?

Mr. Schneider. None at all. We have been doing this for eight years, and we find that two students of a pair carry on the work as one man.

Mr. Thacher. How many students are there in the whole university?

Mr. Schneider. About 1,800.

Mr. Thacher. There are 400 of them doing this work?

Mr. Schneider. Yes.

Mr. Abercrombie. What percentage of the engineering students are taking this course?

Mr. Schneider. Practically all of them. We have only 20 or 30 who are not.

Mr. Abercrombie. And the other students in the university are not taking it?

Mr. Fess. This department is only eight years old?

Mr. Schneider. Yes. When we started this work the engineering college had only three lecture rooms, one drawing room, two offices, and a few machines. Later as we grew we were given an old building which had been abandoned by a technical high school. Wings were added to this building, but we soon outgrew it, and the city council issued bonds to the extent of $450,000 for a new engineering building and power plant. We then filled up to the capacity of the departments of chemistry and physics. Our limit in these departments is 180 freshmen. Last year the city council authorized about $250,000 for a new chemistry building; when that is built we can increase our freshmen enrollment and can accommodate about 1,000 students in engineering.

The Chairman. You mean 1,000 students in the cooperative work?

Mr. Schneider. Yes; last year we had about 4,000 inquiries and applications from prospective students.

Mr. Fess. Now, do these applications come from the business men seeking the boys?

Mr. Schneider. No; they are inquiries and applications from young men seeking information about and admission to the cooperative course.

Mr. Fess. Would you have any difficulty in placing them if you had room for them?

Mr. Schneider. No; but of course we shall not build up to 1,000 students at once; we shall do it gradually in order to do it thoroughly.

Mr. Fess. What percentage of these 4,000 applications would be qualified to take up the work?

Mr. Schneider. About one-half to three-quarters.

Mr. Fess. I suppose they are practically all filed by young men who live in the city or near Cincinnati?

Mr. Schneider. No; the big majority come from outside the State of Ohio. We have applications from all over the United States.

Mr. Fess. What oversight, if any, does the college have over those students who are working in the field?

Mr. Towner. Before you answer that question, I would like to ask you this: Does the university give any preference to the applications from Ohio in the selection of those who may go into the university?

Mr. Schneider. No. We give preference to Cincinnati only; outside of that it is a clear field.

Mr. Towner. That is. they treat those outside of Cincinnati on the same basis that they do those coming from the rest of the United States?

Mr. Schneider. Yes: the boy from Idaho will have the same chance as the boy from Ohio, outside of Cincinnati.

Mr. Towner. I would like to have you tell us how you make your selections from those applicants.

Mr. Schneider. In the first place, we accept any graduates from the public high schools of Cincinnati, since we are a city institution supported by taxation.

Mr. Abercrombie. I understand the university is really the head of the educational system of Cincinnati?

Mr. Schneider. In a way, yes; it is. That is to say, it is the high point in the Cincinnati system.

Mr. Fess. It is the only one in the country.

The Chairman. What is the matriculation fee there?

Mr. Schneider. The cost for the whole five years in the engineering college under the cooperative system for tuition and fees is $425, a little less than a hundred dollars a year.

Mr. Abercrombie. It is a public school?

Mr. Schneider. In a measure it is, although we charge in the professional colleges. but not in the liberal arts college.

Mr. Claxton. What do they average for the five years' work?

Mr. Schneider. That depends upon the student. He is paid what his services are worth and what any other man receives doing the same kind of work. Most of our seniors are earning $4 a day. We will not do business with any concern which pays less than 15 cents an hour.

Mr. Abercrombie. They make one-half of what the regular workingman makes?

Mr. Schneider. Yes. sir; on the same class of work.

Mr. Claxton. I saw a statement somewhere recently in which the sum of $1,500 was mentioned.

Mr. Schneider. The sum varies, depending upon the abilities of the students.

Mr. Towner. I believe you said that the average compensation was about 30 cents an hour.

Mr. Schneider. The average compensation for a student during his whole five years will be nearly 30 cents an hour. The average for all of the students at any one time will not be so high, since there are more freshmen than seniors; the freshmen receive less pay.

Mr. Towner. Do they work a 10-hour day?

Mr. Schneider. In most cases; yes.

Mr. Fess. Suppose we had a national university here with graduate students. In your judgment, would a graduate student here interfere in any way with the expert work in the department if he was employed at certain half-time work there?

Mr. Schneider. Not in the least; the operation of a national university on a cooperative basis would be easier than the work we are doing in the engineering college. We do business with 65 or 70 concerns, which are absolutely distinct from each other and the university in their management. Here in Washington the Government owns the departments and would also own the school.

Mr. Fess. I talked with one expert about it, and he said, "You have got two functions here. My business is expert research work and I can not take any risks with college boys." I think he had in mind foot-ball boys.

Mr. Schneider. As a matter of fact, what does he do now? If he needs a man in the scientific department he gets a bachelor of science man to come in. Under the cooperative scheme this same science man would continue post-graduate educational work in the national university part of his time. I believe you could operate a national university on a cooperative basis without any difficulty. A national university should have as its function the training of highly efficient men for all phases of Government activity. It should be a post-graduate school requiring the bachelor degree for admission. The ablest students from the undergraduate colleges should be selected and brought to Washington to work half time for the departments for which they are selected and half time on post-graduate work relating to their training. The periods during which they work and study are matters of detail and could be arranged to suit all conditions.

For example, men in the Congressional Library who are training to be librarians might devote a half day to each; men in the Geological Survey, six months to each; and men in the agricultural college, 1 month. They could be alternated as they are in the engineering college at the University of Cincinnati, if this is thought desirable. It has proven to be feasible even in advanced laboratory work, in chemical industries, and in consulting engineering. Through this system selected men would be trained as they are now trained in the Government departments, and they would also be given postgraduate work coordinated to a certain extent with their training. So that upon completion of the course the Government would have experts who had undergone, say, a four-year civil-service examination of theory and practice, who were trained in theory and practice, and who were known to be efficient in the particular service for which they were to be engaged. Take the Consular Service, for example; it is a well-known fact that it is very inefficient at present. Under this plan young men would be brought from the undergraduate schools who had done major work in history, economics, and languages; they would enter the departments at Washington, give part time to the National University, and upon the completion of their

training would enter the Consular Service qualified properly for their duties. Similarly graduates in agriculture would receive advanced training in the Government agricultural departments and in the National University. The same idea would apply for engineering graduates for departments which have to do with irrigation, river and harbor work, and so on. In fact, there is no reason why men should not be trained through this system for all of the Government activities.

The cooperative system contemplates careful selection of the students, carefully organized training of a highly educational type, and supplementary instruction by trained teachers. No place offers such opportunities as Washington, and there is probably a greater need for experts trained in this way for the Government service than in any other field of endeavor. Eight years of experience at the engineering college of the University of Cincinnati has demonstrated that the scheme is entirely feasible in a more difficult environment. The men selected for this work should be paid full time for the half-time work for two reasons: First, they will be worth it because of the additional instruction they receive, and, second, it will insure the obtaining of the ablest young men regardless of their financial conditions. In other words, the same rule should be applied to these young men that is applied to students at West Point and Annapolis. Upon the completion of their training they would go automatically into the service fully protected and unhampered by any measures of political expediency, if this is possible. Of course, the cooperative training plan would not interfere with any other type of post-graduate work contemplated. It would stimpulate it.

Mr. Claxton. I think he would make an ideal man for the work, a much better man than the ordinary man at the same price.

Mr. Fess. What we are looking to at this time is some Federal aid in vocational education, and I know that the committee would like to hear something about what you worked out in New York, and then see whether we could apply the Federal proposition in that way.

Mr. Schneider. A question was asked a minute ago about the coordination work. We have a department—a chair—of coordination. The function of this department is to see that an intimate tie is established between the theory and practice and to check and countercheck this tie. The men who do the coordinating go out in the afternoons where the students work, see if the work is as agreed upon, note what the students are doing, and send this information to the proper department of the university. There are also special classes called coordination classes held twice a week for all students, where the principles underlying the work are further explained. In this way the outside practical work is made of great educational value: you will also note that this practical work is done in commercial shops and on railroads with the highest type of modern equipment. The university duplicates none of this practical equipment. No university could do so.

Mr. Fees. That is the point.

Mr. Schneider. If we had no cooperative system, our university shops would have cost us at least $300,000, and in a few years the machinery would have been obsolete. We have saved this $300,000 and the upkeep and sinking fund, and at the same time under the cooperative course we have the use of millions of dollars worth of equipment working under commercial conditions.

The CHAIRMAN. Now, the foreman of the shop dictates the class of work to be done and directs the boys?

Mr. SCHNEIDER. Yes. The students are under the same shop discipline as any other employee. They can be dismissed for cause, and, of course, the university always investigates such cases. The student must be at his work in the morning at the same hour as any other workman.

Mr. PLATT. Your boys get paid more than ordinary apprentices?

Mr. SCHNEIDER. Yes. At first they were paid about the same rate, which was 10 cents an hour; the minimum rate now is 15 cents an hour, but, as a matter of fact, they are paid what their services are worth.

Mr. ABERCROMBIE. In other words, it is being developed that the young man with a high-school training is worth more in these factories than the boy who has not a high-school training, but who comes from the elementary schools.

Mr. SCHNEIDER. Possibly. Our men are older, however, than those from the elementary schools; they have been selected, and they are obtaining supplementary education in the university. Their increased efficiency is due to the three fundamentals—selection, organized apprenticeship for educational values, and a rigorous school course; the last two being, as far as possible, coordinated. Our students start at the very lowest point on the ladder. The young men in railroad engineering begin as laborers on track gangs; then they work in the bridge and building departments, the switch and signal department, on heavy construction, and finally in the engineering department. They come in contact with all kinds of men, from the laborers to the general superintendent. In other words, they are trained for the job.

Mr. ABERCROMBIE. Do these boys who do this cooperative work in the manufacturing plants do the regular laboratory work in the college when they are out for their two weeks of study?

Mr. SCHNEIDER. Yes; we give thorough scientific laboratory work; but we do not teach pratical manual processes.

Mr. ABERCROMBIE. Therefore it is not necessary for the college to provide so much laboratory instruction?

Mr. SCHNEIDER. That is true. Laboratories are devoted, as I have said, to scientific work only. Our students, by the way, do more academic work per two weeks than our regular students do per two weeks.

Mr. PLATT. That is quite remarkable, considering the serious interruption.

Mr. SCHNEIDER. The interruption does not make any greater lag on a Monday morning when the students return from their practical work than is usual in any Monday morning classes; and since the students are doing physical work during their biweekly periods they can carry more mental work.

Mr. CLAXTON. Do they not do a much better type of work and are they not very much more interested in it because of the practical examples that have come up in the two weeks of outside work?

Mr. SCHNEIDER. Yes.

Mr. CLAXTON. In other words, theory and practice must run parallel in order to get practical results?

Mr. SCHNEIDER. That is my theory.

Mr. CLAXTON. Would not the same principle apply to all kinds of schools—elementary schools and other kinds?

Mr. SCHNEIDER. I think so. You know, of course, that cooperative schools are in operation in a number of high schools in the United States. The cooperative principle is fundamental. Its application to high schools, colleges, and to post-graduate schools is possible for the training of all kinds of men in all kinds of positions. There would be variations only in detail. For example, the practical work a post-graduate student would do would be just as different in character as is post-graduate school work from that of a young man in a high school or college.

Mr. THACHER. Is not your work modeled somewhat after the lines of the vocational work in Germany? That is, where they take children of a certain age and work them half time?

Mr. SCHNEIDER. You mean the continuation schools?

Mr. THACHER. Yes.

Mr. SCHNEIDER. No. Under the continuation-school plan the employer releases his employees, young men and women, for a few hours for school instruction, but he is under no obligation to maintain apprenticeship courses approved by the school. He may keep his working people at any kind of work and the school has nothing to say about the practical work. When they go to school the children are given what instruction the school thinks they need.

Mr. ABERCROMBIE. There is no coordination?

Mr. SCHNEIDER. Not necessarily. If the continuation-school student is learning a trade in all its branches, there might be coordination. If he is on a punch press, for example, you will see there would be very little coordination. Under the cooperative system a broad apprenticeship course with all its educational values is assured and coordination is not only feasible but a basic part of the plan.

Mr. TOWNER. Can you give us a short synopsis of your work in New York?

Mr. SCHNEIDER. That is difficult. I have boiled down my report to about 100 pages of closely printed matter. These, however, are the conclusions as printed in the report:

1. That day continuation schools be inaugurated for those children who are forced to go to work when the law permits them to do so. The occupations into which the children go should be carefully studied so that the curricula of these continuation schools may be wisely devised. It must be observed that the school work of the enervating occupations must differ from the school work of the energizing occupations in that it must counteract the influence of the work rather than supplement it. If it be found that employers are opposed to this plan, we recommend that a compulsory continuation-school law be submitted to the General Assembly of the State of New York. This law should require the employer to send children to school not less than four hours per week during the daytime wherever the public school system inaugurates such schools. Because of the size of the task involved the law should not make it mandatory for the schools to establish continuation courses all at once, but when they are established the law should make it mandatory for the manufacturers to send the children to them for day instruction.

2. That cooperative courses, to a limited extent, be inaugurated. Cooperative courses contemplate an agreement between the public school authorities and commercial shops whereby the shop authorities agree to establish thorough old-

fashioned apprenticeship courses, subject to the approval of the public school authorities; the public school agrees to inaugurate special courses intended to give the apprentice in the commercial shop a well-rounded mental training. As a rule students in the cooperative courses should spend alternate periods of time (for example, alternate weeks) in the schools and in the commercial shops. The student apprentices in the cooperative course are divided into two alternating sections, one being at the school while the other is at the shop. In this way both school and shop are always fully manned.

We are opposed to the introduction of the trade-school system for industrial education. By trade school is meant a school which in its shops reproduces factory condiions as nearly as possible and which attempts by full-time attendance of the pupil to graduate an artisan competent to enter a trade without an apprenticeship, or at most with a very short apprenticeship. If this type of school were put into operation, it is obvious that it could not be applied to enervating occupations. If it were applied only to energizing occupations, and if enough schools were built to supply the energizing trades with artisans, the result would be that the less-favored children financially would be compelled to take the enervating occupations, for the manufacturer would discontinue his apprenticeship course if the public schools supplied him with artisans. In effect, then, the public school would be going over into the field of industry and closing the door of the energizing occupations to the poorer children, who could not afford to continue in the trade school until they were 17 or 18 years old. In addition to this, the trade school would solve only a very small part of the problem, because it would reach only a relatively small number of children and serve only a limited number of occupations. Carried to its logical conclusion, it would oversupply the market in the skilled trades.

3. That the curricula of the boys' vocational school and of the girls' vocational school be broadened to embrace a larger number of types of occupations. These schools are really prevocational schools. We further recommend the inauguration of prevocational schools patterned after the boys' vocational school and the girls' vocational school after their curricula have been amplified.

4. That the parental school (Long Island) be enlarged so that children sent there may remain a greater length of time. The school is now so crowded that the benefits obtainable for the children are restricted by the time each child is allowed remain.

5. That a comprehensive survey be made showing the number of girls and boys employed in different occupations; whether the work is energizing or enervating; whether it is juvenile work only, or whether it offers good permanent employment; whether or not it is seasonal; together with the usual vocational statistics on wages, home conditions, reasons for leaving school, etc. This survey should include an analysis to ascertain when the workers could best be released from their work to attend school.

6. That a compulsory education law be enacted for juvenile workers similar to the Ohio law, which makes the introduction of day continuation schools optional with the school authorities and which makes the attendance mandatory when the schools are put into operation.

7. That the elementary night schools, operating under the compulsory education laws, be abolished.

8. That a propaganda be undertaken through neutral sources to awaken all the elements of the city to the serious educational problem growing out of the city's work. We do not make specific recommendations on how the school and the shop shall be brought into cooperation. We do recommend, however, that a system of advisory boards, consisting of representatives of employers and employees in the various occupations, be inaugurated to assist in bringing them together.

You will see that I recommend both continuation and cooperative courses. The continuation scheme, in my opinion, is transitional to cooperative. What we are working toward in Ohio is this: We want the school authorities to exercise supervision over the children in the State in school work and in commercial work until they are 18 years of age. In our part of the State we are in favor of a law which will permit a child to go to work when he is 14 years of age upon conditions approved by the public-school authorities and which will permit the school to have the child about half of its time.

Mr. Towner. Has that proposition of which you speak been formulated into an Ohio law?

Mr. Schneider. It was introduced as an amendment to a bill and failed of passage. I think it will go through in due time. The proposition is as follows:

> *And provided further*, That in school districts maintaining cooperative courses in industrial education pupils over fourteen years of age and under sixteen years of age may be employed in mercantile, industrial, agricultural, and household occupations as an essential part of such cooperative form of education and may receive pay for work so performed, provided that all such employment shall be under the control and direction of the board of education and shall be for distinct educational purposes in accordance with contracts entered into by the board of education and the concerns by whom the pupils are to be employed All such contracts shall carefully specify the hours of employment; the rate of pay; the kind of work; and the conditions under which the same is performed with reference to safety, sanitation, and morals. All such employment shall be carried on under the careful supervision of the board of education, and shall be permitted only when in their judgment the educational, physical, and moral well-being of the pupils is conserved.

Mr. Towner. I want to ask you whether you have considered the question of Federal aid in this work. For instance, you know what national aid has done for the agricultural colleges?

Mr. Schneider. Yes.

Mr. Towner. Have you thought as to whether or not it is practicable, and, if so, in what manner it can be made practicable for the Government to aid in vocational education?

Mr. Schneider. Yes. Briefly, I think the Government could very properly give aid to communities. You can do that, can you not? That is, you do not have to do it through the States, do you?

Mr. Towner. No; not through the States; but this is the principle upon which agricultural aid is based: The Nation aids the States which help themselves in education for agricultural communities through the agricultural departments of the States.

Mr. Schneider. I understand.

Mr. Towner. Would it be possible for the General Government to establish standards by which when the State schools or State colleges came up to those standards or requisites they may be aided by contributions from the National Government?

Mr. Schneider. Yes; I think it would be entirely possible, but I think it ought to be limited to communities which are doing real vocational work within the bounds of economy and efficiency. For that reason I think such aid should be given only to what are known as prevocational and continuation schools and cooperative schools. I should oppose granting Federal aid to trade schools and to manual-training schools.

Mr. Towner. But have you considered whether that could be applied to secondary education, or whether or not it ought to be limited to such education as you are giving in the University of Cincinnati?

Mr. Schneider. I think it ought to be given first to secondary education, and then, secondarily, to the higher institutions.

Mr. Towner. Now, of course, any scheme for aid to secondary education in vocational training would involve a very much larger expenditure of money than such work as you are doing now in your university?

Mr. Schneider. Yes.

Mr. Towner. It would be very much easier, because of that fact, for us to commence, perhaps, by giving direct aid to such institutions as yours, because it would involve a much less expenditure of Government funds.

Mr. Schneider. Oh, yes.

Mr. Towner. Then if that should prove satisfactory to the people and to Congress it might then be possible for us to extend it to secondary work?

Mr. Schneider. Yes.

Mr. Towner. Every proposition of secondary work seems to scare people, and sometimes Congressmen, because it involves such a tremendous expenditure.

Mr. Schneider. That is just the point. Under the cooperative system there is no expense for school shops and teachers to teach manual dexterity. This burden is borne by the industries of the community, and very properly so. The expenditure for communities supporting cooperating and continuation courses would be within reason, but if you attempted to give aid to trade schools which attempted to teach all the manual skill of the trade in school shops you would bankrupt the Nation and even then teach only a few trades.

Mr. Abercrombie. The trouble about that proposition is that this aid might be limited to the larger cities.

Mr. Schneider. Not at all. You can have cooperative courses in communities of any size. You can train the children in all the occupations of the town through the cooperative system and in numbers to meet the town's demands. You will understand that the cooperative scheme applies to the butcher, baker, candlestick maker, agriculture—in fact, to any occupation which a child takes up.

Mr. Claxton. Might I partially answer your question, Mr. Towner?

Mr. Towner. Oh, yes. I want it distinctly understood that I am not objecting to these things, but I want to bring out all the information I can.

Mr. Claxton. The land-grant college fund administered by the Department of the Interior through the Bureau of Education is not used for agriculture alone. It is used for any branch of the mechanical arts and is applied to mechanical engineering and all the grades of domestic science. The Bureau of Education would approve most heartily most any kind of a proposition similar to that suggested by Dean Schneider. It may apply to secondary education; in fact, it does to at least 25 schools in the country now. In Alabama it must be used for certain things and can not be used for engineering. If all the colleges in the country, 67 or 68 of them, took advantage of that work and put it into operation to-morrow it would be approved by the Department of the Interior.

Mr. Abercrombie. Well, Dean Schneider, this work is done in Cincinnati without extra expense?

Mr. Schneider. Only the expense of additional teachers, class rooms, and laboratories. There is no additional expense for any practical instruction. In our case the additional expense for teachers for additional students is met by the additional fees of these additional students; not exactly, of course, but approximately.

Mr. Abercrombie. If there had not been any increase in the student body, there would have been no extra expense.

Mr. Schneider. That is correct. You see the cooperative system aims to tie the school to all the daily affairs of life, vitalizing both school work and life work by the contact.

Mr. Towner. In other words, the basic word of your scheme is "cooperation"?

Mr. Schneider. Yes. First, for the benefit of the young man, and secondarily, for the benefit of industry; and, of course, you will see also that the amount of work done by the school under this system for a given sum of money is much greater than under any other system. The cooperation works to the benefit of the three parties concerned—the boy, the shop, and the school.

Mr. Abercrombie. Mr. Chairman, it seems to me that Cincinnati has pointed the way to one branch of vocational education that can be carried on without additional expense.

Mr. Fess. As you increase the number of students you can multiply your teachers?

Mr. Schneider. Yes.

Mr. Fess. Would not the additional receipts due to the increase in the student body overcome the extra expense of more teachers?

Mr. Schneider. Yes; just about.

Mr. Claxton. You can take on a larger number of students by working them half time than you could otherwise handle?

Mr. Schneider. Yes; half of the students are at the school at any one time instead of all the time. For example, our new building is planned to accommodate about 1,000 students, but if these were full-time students at the school we could accommodate only 500.

The Chairman. Gentlemen, this has been very interesting, and I think we ought to ask the dean to extend his remarks when they are written out, and incorporate in them whatever he thinks necessary.

Mr. Schneider. I shall do so.

Mr. Abercrombie. Usually we quit school and go to work, but you are going to work while you are in school. That is an important feature of your scheme.

Mr. Chairman. That is the point. When the boy leaves the institution he is equipped; he can go right out into a job.

Mr. Fess. Tell the committee about how much more rapid is the promotion of your students who have taken this course than the promotion of those who have not been so trained.

Mr. Schneider. Briefly, our graduates have had rapid promotion. Their positions upon graduation are higher than those of the regular four-year theoretical graduates and their promotions are much more rapid.

Mr. Abercrombie. In other words, he comes out practically an expert.

Mr. Schneider. Much more expert than the regular college graduate and just as well trained theoretically. I think, in fact, his theoretical training is much sounder by reason of his coming in contact with practical exemplifications.

Mr. Claxton. How much advantage has he over a four-year course, full-time man?

Mr. Schneider. I think that the graduate from the cooperative course is as far advanced at the completion of his five-year cooperative work as the regular four-year graduate is four years after he is out of college.

Mr. **Claxton**. And at the same time he makes a great deal more money than it costs him to go through the university. He has paid his way and more, too.

Mr. **Schneider**. Yes; that is, more than his tuitions and fees. In this course a young man can not pay all of his expenses of living and also his tuition and fees out of his earnings, although a few have done it; but these have been exceptional cases.

Mr. **Claxton**. And he also has an advantage over what he would have had if he had given all his time to school work?

Mr. **Schneider**. He has an advantage in that he has been trained and educated and not only educated. I trust that you get my meaning.

The **Chairman**. Dean, we appreciate very much what you have told us. and I extend to you the thanks of the committee.

Mr. **Schneider**. Thank you. It has been a great pleasure.

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